Control and Prevention Tuberculosis Project
FHI 360
China, Thailand, Burma

FY2015 Semi-Annual Performance Report
(October 1, 2014 – March 31, 2015)

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Narrative: Executive Summary

In its fourth year of implementation, the USAID Control and Prevention-Tuberculosis (CAP-TB) Project has the following priorities: to scale up the project's model with long-term sustainability in mind, and to measure its impact on case detection and treatment outcomes for tuberculosis (TB) and multi-drug resistant tuberculosis (MDR-TB).

The CAP-TB model for MDR-TB control is founded upon a patient-centered, community-driven strategy to strengthen TB platforms. The first step in this model is to approach the TB platform from the patient's perspective to define gaps, starting with their entry point at the time of identification as a potential patient, to screening, diagnosis, treatment initiation, and treatment success. In some countries, the major gap may be the "diagnosis gap", when the number of patients diagnosed is far lower than the estimated number of cases in the country. Globally, only 45% of the estimated 300,000 MDR-TB cases were diagnosed in 2013. Other countries may struggle with a "diagnosis-treatment gap", when patients are diagnosed but are not initiated on treatment. Finally, the vast majority of high MDR-TB-burden countries struggle with achieving treatment success at the World Health Organization's target of 70%, with the global treatment success rate of 48%. China, Thailand, and Burma each have unique performance characteristics for these TB and MDR-TB indicators. The CAP-TB model standardizes the approach in these different countries to identify the priority gaps in each setting and ensures that solutions to address these gaps are patient-centered. The model also prioritizes community-driven solutions, with the goal toward sustainability, cost-effectiveness and capacity-building at the grassroots level—the patients, households, and communities that are affected by MDR-TB.

Scale-up: One of the common themes for the three CAP-TB countries during this reporting period is the significant progress on scale-up and expansion of the project's model. Within each country, CAP-TB is expanding to some of the most challenging areas for TB and MDR-TB control.

1. In China, CAP-TB has scaled up to rural Yunnan Province, adapting the urban model that has been developed in Kunming to rural Zhen Xiong County, which has the highest number of TB cases in the province. The project now also provides technical assistance to Xin Jiang, the province in the far northwest corner of China with the highest TB prevalence in the country. Xin Jiang province struggles with patient follow-up and treatment outcomes, and CAP-TB's patient-centered counseling strategy for adherence has potential to impact an area of China with one of the worst TB epidemics.
2. In Thailand, the project was requested by the Ministry of Public Health to provide technical support in Kanchanaburi, the province with the largest MDR-TB outbreak that has persisted for years. Replicating the TB network-building approach from Rayong Province will focus efforts on the basics of TB control, including inpatient-outpatient coordination, standardized recording and reporting to ensure data tracking, and building technical capacity on MDR-TB management.
3. In Burma, the CAP-TB scale-up, funded by the Three Millennium Development Goals (3MDG) Fund with technical support from the FHI 360 CAP-TB team, will standardize support for nearly 1800 MDR-TB patients in the highest MDR-TB prevalent townships in Yangon. With this scale-up, the

project's patient-centered, community-driven model is now led by the Myanmar National Tuberculosis Program (NTP) and implemented by the local organizations that have partnered with CAP-TB, a critical step toward standardizing MDR-TB control in the country.

Sustainability and Cost-share: Given the project's timeline, one overarching priority during this funding year is to ensure sustainability and continued funding for critical activities. The CAP-TB Burma program will close at the end of this year, with China and Thailand continuing for the fifth and last year of the project (through October 2016). Prioritized activities that should be continued are those that involve patient support, such as what the project has provided in Myanmar, as well as activities with demonstrated or strong potential for impact on case detection and treatment success.

In Burma, the CAP-TB model scale-up by 3MDG demonstrates strong support and recognition from the NTP for CAP-TB's MDR-TB model. The longer term goal is for the Burma government itself to support these MDR-TB patients from diagnosis through treatment, thus cost effectiveness is critical for the long term sustainability of the project's implementation. In the near term, CAP-TB's scale up is being funded by 3MDG and other donors, which will enable the project's model for patient support to continue after close-out. Table 1 shows the CAP-TB model scale up in Yangon, funded by 3MDG, GFATM, Burnet Institute (using their own funds), and the NTP.

Table 1. CAP-TB Model Scale-up by 3MDG in Burma

	Number of patients who will get CAP-TB living support package*	Funding
MMA (8 townships) (2 with CAP + 6 with 3MDG)	400	3MDG
MHAA (8 townships) (2 with CAP + 6 with 3MDG)	400	3MDG
PGK (13 townships) (6 with CAP + 7 with 3MDG)	600	3MDG
PSI (6 townships)	240	GFATM/STC §
Burnet Institute (1 township)	70	Burnet
PPM MMA (3 townships overlap)	**	GFATM/UNOPS §§
MRCS (7 townships)	70	NTP
Total townships = 43 townships (as 3 townships are overlapping)	**1,780**	

*Living support package comprises nutrition, patient support (30 USD), home based care (monthly visits for side effects, infection control, and referral to township health center for symptoms or if presumptive patient);

** MMA provides $30 USD to each patient thus support is combined from MMA for 2 townships under 3MDG and Burnet will cover 1 township for the remaining components of the package

§ STC = Save The Children; §§ UNOPS = United Nations Office for Project Services

For sustainability in China, CAP-TB has received financial support in the form of cost share from the government to conduct the project's activities. As shown in Table 2, a significant proportion of the total cost of activities has been contributed by the project's partners to date.

Table 2. CAP-TB Cost-Share by Partners in China

YATA contribution				
YEAR	CAP-TB China (USD)	YATA (USD)	Total (CAP-TB + YATA)	% from YATA
FY 2012-2013	206,516.63	555,368.92	761,885.55	73%
FY 2014	70,705.47	1,395,189.05	1,465,894.52	95%
FY 2015 till Jan'15	38,555.82	29,259.68	67,815.50	43%
Total	315,777.92	1,979,817.65	2,295,595.57	86%
No.3 Hospital contribution				
YEAR	CAP-TB China (USD)	No.3 hospital (USD)	Total (CAP-TB + No. 3)	% from No. 3
FY 2014	19,038.90	5,040.94	24,079.84	21%
FY 2015 till Jan'15	7,493.70	19,505.33	26,999.03	72%

Demonstration of impact: CAP-TB will continue to prioritize data analysis and interpretation to measure the project's impact on case detection and treatment outcomes. All project interventions are designed to impact the following:

1. Prevention: Minimizing transmission among household and community contacts.
2. Diagnosis: Measuring the efficiency of identifying presumptive patients; screening those who are referred; and diagnosing using sputum smear, GeneXpert, culture and drug susceptibility testing. All of these variables will impact the case detection.
3. Treatment: Initiating treatment for all patients who are diagnosed, and maximizing treatment success (regimen completion and microbiologic cure)

To date, six abstracts analyzing data (described above) from the CAP-TB project were submitted to the Union's 46th World Lung Conference in Cape Town (Annex II). The CAP-TB project has also recently published a manuscript, *Screening of patients with Diabetes Mellitus for Tuberculosis in Community Health Settings in China.* This work was conducted in Kunming in partnership with CAP-TB partner, The Union (Annex II).

Annex I: Summary of accomplishments against the work plan and targets

Burma						
PMP	CAP-TB	Indicator description	SAPR target FY15	Achievement		Explanation
				#	%	
8	1	Number of TB patients newly registered for DOTs through USAID supported sites	222	116	52%	Changes in patient enrollment criteria (adjusting start date to include only those enrolled before 1 January 2014) impacted the achievements. Patient start dates differed in different townships, thus the achievements are variable: MHAA (26 out of 70) 37%, PGK (47 out of 72) 65% , and MMA (43 out of 80) 54%
9	2	Number of individuals reached with TB prevention and treatment messages, through outreach and small group activities	5,200	5,637	108%	The overachievements are due to greater participation than anticipated for World TB Day events (MMA) and extra group health education sessions (PGK) MHAA (2,260 out of 3,200) 71%, MMA (1,169 out of 400) 290% PGK (2,208 out of 1,600) 138%
	3	Number of individuals referred to TB- and MDR-TB related services	300	325	108%	MHAA (58 out of 100) 58% due to changes in patient enrollment criteria and this indicator linked to contact referral during home based care activity MMA (225 out of 100) 225% due to strong collaboration during Active Case Finding activities of National TB program, which overachieved the target PGK (42 out of 120) 35% due to changes in patient enrollment criteria and this indicator is linked to contact referral during home based care activity
	4	Number of IEC materials distributed through outreach and clinical interventions	74,085	70,996	96%	MHAA (10,505 out of 11,485) 112% MMA (56,350 out of 57,600) 98% PGK (4,141 out of 5,000) 82%

Burma						
PMP	**CAP-TB**	**Indicator description**	**SAPR target FY15**	**Achievement**		**Explanation**
	6	Percentage of households with MDR-TB patients meeting quality infection control standards	100%	96%	NA	CAP-TB selected 9 top questions from the IC checklist directly related to infection control, in line with National TB Program. Numbers of households receiving 7 of 10 points were defined as "meeting infection control standards". 277 households of MDR TB patients passed the standards out of total 290 households. (6 monthly indicator)
7	9	Number of MDR-TB cases diagnosed	140	86	61%	86 MDR-TB cases were identified among 359 samples tested using the CAP-TB procured Gene Xpert machine during October to December 2014. Due to staff changes at NTP, the GeneXpert reports were delayed and so this figure is representing only the first 3 month of reporting period.
10	11	Number of new MDR-TB diagnosed patients initiated on treatment	300	71	24%	This information is based on NTP's MDR-TB register from 17 CAP-TB coverage townships. There were challenges for IAs in getting information from MDR-TB registers at the Township Health Centers. These registers were not updated as per guidelines, but we are reporting what was recorded: 71 is the number of patients recorded in Township registers.
16	12	Number of USAID-supported facilities with strengthened MDR-TB referral system	91	91	100%	18 MDR-TB treatment centers, in townships with CAP-TB-trained GP for effective MDR-TB referral + 2 Upper and Lower Myanmar TB centers + 1 Aung San TB hospital. Also 70 Scheme III GPs trained by MMA CAP-TB project have been contributing to National TB Program for effective MDR-TB referral
	13	Percentage of successful referrals	75%	88%	NA	Among 325 referred cases, 287 accessed to diagnosis and treatment services MHAA (52 had access out of 58) 90% MMA (197 had access out of 225) 88% PGK (38 had access out of 42) 90%

Burma						
PMP	**CAP-TB**	**Indicator description**	**SAPR target FY15**	**Achievement**		**Explanation**
17	14	Number of individuals trained in TB-case-finding activities	127	108	85%	MHAA (41 among targeted 40) 103% MMA (18 among targeted 15) 120% 3 extra community supporters were trained due to program needs PGK (49 among targeted 60) 82% since PGK coverage includes urban townships, the recruitment of volunteers had some challenges FHI 360 (0 among 12) 0% The outreach refresher trainings by FHI 360 with partners was not conducted since in FY15 all partners have moved to community volunteer model. These trainings have now been included in partners' 3MDG portfolios.
	16	Number of individuals trained	9	8	89%	As continuation of Organizational Capacity Building, the follow up training was planned but has been postponed to Quarter 3. The reported 8 persons were from PGK, who received Community Facilitation Skill training with CAP-TB support.
	17	Number of individuals received package of TB/ MDR-TB service through USAID supported sites	396	275	69%	The low achievement is due to an inaccurate projection, which was based on unreliable treatment start date information from Township MDR-TB registers
19	18	Number of local organizations provided with TA for strengthening community-based approaches for PMDT	3	3	100%	
	19	Percentage of MDR-TB cases on MDR-TB treatment regimen with negative culture by six months	>80%	99%	NA	According to MDR-TB registers at township health centers, **273** MDR TB cases started treatment during April 2013 (start month of CAP TB support) to end of January 2014 (end month of CAP-TB support). **180** patients had completed month 6th sputum culture examination and **179** resulted 'Negative'.

Burma						
PMP	**CAP-TB**	**Indicator description**	**SAPR target FY15**	**Achievement**		**Explanation**
	20	Percentage of MDR-TB cases on MDR-TB treatment regimen who died by six months	≤12.5%	5%	NA	According to MDR-TB registers at township health centers, **273** MDR TB cases started treatment during April 2013 (start month of CAP TB support) to end of January 2014 (end month of CAP-TB support). **14** patients had expired before their month 6th of the MDR-TB treatment.
20	21	Number of individuals trained on the collection, use, and analysis of data and strategic information for the management of the TB program	6	0	0%	This activity has been shifted to Quarter 3. There will be a two day workshop during April to strengthen data recording and reporting system for Community Based MDR-TB DOT.
21	22	Number of operational research studies supported with USAID funds	1	1	100%	The Case-Control study of MDR-TB risk factor analysis is ongoing and currently recruited 118 out of 200 MDR-TB and 244 of 400 TB patients.
24	26	Number of private-sector partners working with NTP with USAID support	73	73	100%	Under CAP-TB support, there were 3 IAs working with NTP and township health centers for MDR-TB management. Also there were 70 PMDT trained scheme III GPs, who are contributing to NTP for effective MDR-TB referral.

China						
PMP	**CAP-TB**	**Indicator description**	**SAPR Target FY15**	**Achievement**	**%**	**Explanation**
9	2	Number of individuals reached with TB prevention and treatment messages, through outreach and small group activities	2929	9151	312%	**YATA:** 916 (495M and 421F), including 360 (150M and 200F) reached by big group **Kunming No.3 Hospital:** 720 (442M and 278F) **YAI:** 1,372 (849M and 523F) **Zhenxiong:** 6,333 (3,315M and 3,018), including 5,396 (2,766M and 2,630F) reached by big group. Please note that number of TB patients reached by education/counselling service is de-duplicated, which explains the difference between 9341 (total from above) compared to the total achievement of 9,151. The result significantly exceeded the target because 1) 63% of the total result (5,746 individuals) were reached by big-group events. It is hard to predict and control the number of participants in open, public places; 2) YAI and Kunming No. 3 hospital assigned more peers and nurses than before to conduct one-on-one counselling; 3) Zhenxiong Shiyan High School initially planned to cover a few classes of students and finally expanded to all the students of the school (6333)
	3	Number of individuals referred to TB- and MDR –TB related services	100	233	233%	**YATA:** 60 (43M and 17F) **Kunming No.3 Hospital:**75 (44M and 31F) **YAI:** 4 men **Zhenxiong:** 94 (66M and 28 F) Referrals are bidirectional and include referrals from the TB clinical services back to the community support services as well as the ones from the community to TB clinical services. Referrals between TB services in Zhenxiong are also tracked. The target was under-

China						
PMP	**CAP-TB**	**Indicator description**	**SAPR Target FY15**	**Achievement**	**%**	**Explanation**
						estimated because referral data was not available for our estimation for new CAP-TB sites in Zhenxiong.
13	5	Number of facilities with quality infection control standards with USAID support	7	4	43%	Fuhai Community Health Center, No.3 Hospital, TCC and Zhenxiong CDC TB Clinic have met quality infection control standards. During the second half of FY15, 3 more facilities in Zhenxiong with USAID support will meet infection control standards after they make improvements.
	6	Percentage of households with MDR-TB patients meeting quality infection control standards	100%	100%	100%	**YATA:** 63 TB/MDR-TB patients were assessed for infection control during home visit and all met quality infection control standards **Zhenxiong:** 20 TB patients were assessed for infection control during home visits and all met quality infection control standards
7	9	Number of MDR-TB cases diagnosed	33	62	188%	**YATA:** - 33 MDR-TB cases (10 new and 23 retreatment) diagnosed by YATA (23M and 10F) **Kunming No. 3 Hospital:** - 29 MDR-TB cases (1 new and 28 retreatment) diagnosed by No. 3 hospital (19M and 10M). Kunming No.3 Hospital did not pass EQA for their TB laboratory work in FY14.Their diagnosis for MDR-TB was not officially recognized by the CDC system when the target for this indicator was developed. However, the hospital passed EQA at the beginning of FY15. Since then, CAP-TB project has accepted No.3 Hospital for its number of MDR-TB cases diagnosed, explaining the overachievement.
10	11	Number of new MDR-TB diagnosed patients	23	41	178%	**YATA:** - 12 MDR-TB patients initiated on treatment (6M and 6F)

China						
PMP	**CAP-TB**	**Indicator description**	**SAPR Target FY15**	**Achievement**	**%**	**Explanation**
		initiated on treatment				**No. 3 Hospital:** 29 MDR-TB patients initiated on treatment (19M and 10F) The target was under-estimated for the same reason for overachievement of PMP #7 above, due to No. 3 Hospital's passing EQA during FY15.
16	12	Number of USAID-supported facilities with strengthened MDR-TB referral system	25	23	92%	**YATA:** - Fuhai community health center/stations (13), TCC and XSCDC **Kunming No.3 Hospital:** - NO.2 TB Division **YAI:** - YAI and YCC **Zhenxiong:** ZXCDC, ZXCH, ZXSHS, PJHC, and MSHC The target has been met at the first half of FY15 as planned and there will be no significant growth during the next six months of FY15.
	13	Percentage of successful referrals	85%	69%		**YATA:** 93% **Kunming No.3 Hospital:** 52% **YAI:** 100% **Zhenxiong:**29%
17	14	Number of individuals trained in TB-case-finding activities	98	114	116%	**YATA:** 26 (8M and 18F) **YAI:** 14 (2M and 12F) **Zhenxiong:**74 (51M and 23F)
18	15	Number of individuals trained in programmatic management of MDR-TB	74	274	370%	**YATA:** 30 (17M and 13F) **Kunming No.3 Hospital:** 172 (90M and 82F) **Zhenxiong:**72 (26M and 46F) The target was under-estimated because CAP-TB project planned to

China						
PMP	**CAP-TB**	**Indicator description**	**SAPR Target FY15**	**Achievement**	**%**	**Explanation**
						select key physicians from the Kunming No.3 Hospital to attend the Union's training when the target was made. The head of the hospital then extended the capacity building plan to cover all the physicians and nurses of the hospital for the clinical training.
19	18	Number of local organizations provided TA for strengthening community PMDT	10	10	100%	YNCDC, XSCDC, TCC, Kunming No.3 Hospital(#2 TB Division), YAI, YCC, ZXCDC, ZXSHS, PJHC,MSHC
20	21	Number of individuals trained on the collection, use, and analysis of data and strategic information for the management of the TB program	50	48	96%	**YATA:** 33 (24M and 9F) **YAI:** 9 (3M and 6F)) **Zhenxiong:**6(2M and 4F) The target has been met at the beginning of this fiscal year as planned. There will be not much increase during the next six months, thus we use the full year target for this indicator (fixed number of individuals being trained on data collection).
21	22	Number of operational research studies supported with USAID funds	1	0	0%	A clinical audit operational research will be conducted in Q3 FY15
22	23	Number of studies published or conference presentations given as a result of USAID support for research programs	0	1		Screening of patients with diabetes mellitus for TB in community health settings in China by Dr. Lin Yan accepted for publication in Tropical Medicine & International Health
24	26	Number of private-sector partners working with the national TB control program	100	52	52%	49 private clinics in Fuhai RD, Kunming No.3 Hospital, Zhenxiong county hospital and Miaoshan village clinic

Thailand						
PMP	CAP-TB	Indicator description	SAPR FY15 target	Achievement		Explanation
				#	%	
9	2	Number of individuals reached with TB prevention and treatment messages, through outreach and small group activities	300	200	67%	This reported number is the estimate for those who attended the TB campaign activities organized in Klaeng only. The other three hospitals (Rayong, Ban Khai and Mabtapud) will organize activities in April instead of March, explaining the underachievement. The number of people who will attend the campaign activities organized by these three hospitals will be reported in the APR.
15	8	Number of laboratories provided with TA for the roll out of new diagnostic	4	4	100%	CAP-TB Project coordinated with laboratory specialists of FHI 360 Asia Pacific Regional Office (APRO) to conduct initial laboratory assessment on TB/MDR-TB diagnostic at the four primary partner hospitals. Follow-up supervision visits and relevant TA will be provided in the following quarters.
7	9	Number of MDR-TB cases diagnosed	15	21	140%	This number comprised individuals diagnosed by conventional (7 patients) and molecular (14 patients) methods. This target was based on FY14 performance, and FY15 performance has exceeded FY14's, thus explaining the overachievement.
	13	Percentage of successful referrals	80%	38%		The successful referral rate was calculated from number of people referred and number who received services at the project partner hospitals (92) divided by total number of people referred to the project partner hospitals (241). Fifty-eight cases referred were not reported to take up services and thus are missing cases. The project will further follow up on these missing cases and discuss with the project partners to understand challenges in referral tracking and reporting.
18	15	Number of individuals trained in programmatic management of MDR-TB	60	68	113%	These numbers comprise participants who attended the project bi-monthly case conference in Rayong (20) and the case conference in Bangkok (48) held for the Medical Service Department of Bangkok Metropolitan Administration (BMA).
	16	Number of individuals trained	30	26	87%	This number referred to health care providers from public and private hospitals, including Rayong Central Prison and concerned staff from Rayong PHO who attended provider-patient communication training.

Annex II: Publications and Abstracts

Peer-reviewed publication:

Lin Y, Innes A, Xu L, Li L, Chen J, Hou J, Mi F, Kang W, Harries AD. Screening of patients with Diabetes Mellitus for Tuberculosis in Community Health Settings in China. *Trop Med Int Health*. 2015 Apr 15. [Epub ahead of print]

Submitted Abstracts to the 45th World Lung Conference (International Union Against Tuberculosis and Lung Disease)

D. Punpiputt, S. Chareonsiri, J. Thibbadee, J. Indrasap. Targeted, repetitive education to improve MDR-TB knowledge retention in Rayong, Thailand. [submitted]

M. Li, X. Zhao, L. Li, M. Ma, M. Li, C. Du, Z. Xu, A. Innes. A patient-centered TB counseling strategy impacts outpatient follow-up in Yunnan, China. [submitted]

L. Xu, L. Li, Z. Xu, C. M. Wong, Y. Guo, A. Innes. Barriers and facilitators to treatment adherence among MDR-TB patients in Yunnan, China. [submitted]

L. Xu, Z. Xu, Z. Yu, W. Zhang, Z. Huang, L Li. G. Nie, A. Innes. 57 Zone: Using social media in China to empower TB patients for treatment success. [submitted]

S. H. Aung, P. W. Tun, N. Naung, K. Z. Aye, K. S. Win, A. Innes. Mobile health as a tool to strengthen case finding and treatment success for MDR-TB in Myanmar. [submitted]

S. H. Aung, P. W. Tun, K. Z. Aye, S. Tun, T. Zaw, K. S. Win, A. Innes. A comparison of models for MDR-TB household contact tracing in Myanmar. [submitted]